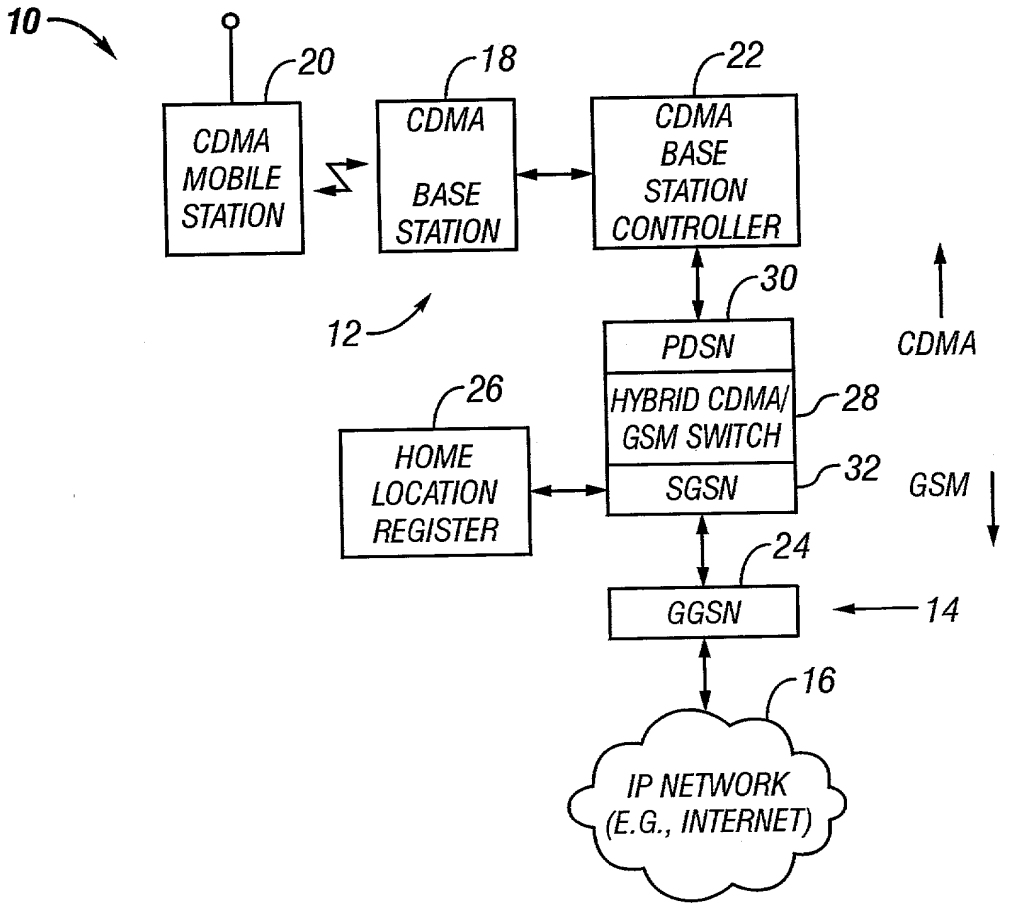
10
20
18
22
CDMA MOBILE STATION
CDMA BASE STATION
CDMA BASE STATION CONTROLLER
12
30
PDSN
CDMA
26
HYBRID CDMA/ GSM SWITCH
28
HOME LOCATION REGISTER
SGSN
32
GSM
24
GGSN
14
16
IP NETWORK (E.G., INTERNET)

FIG. 1

EP 1 052 868 A2

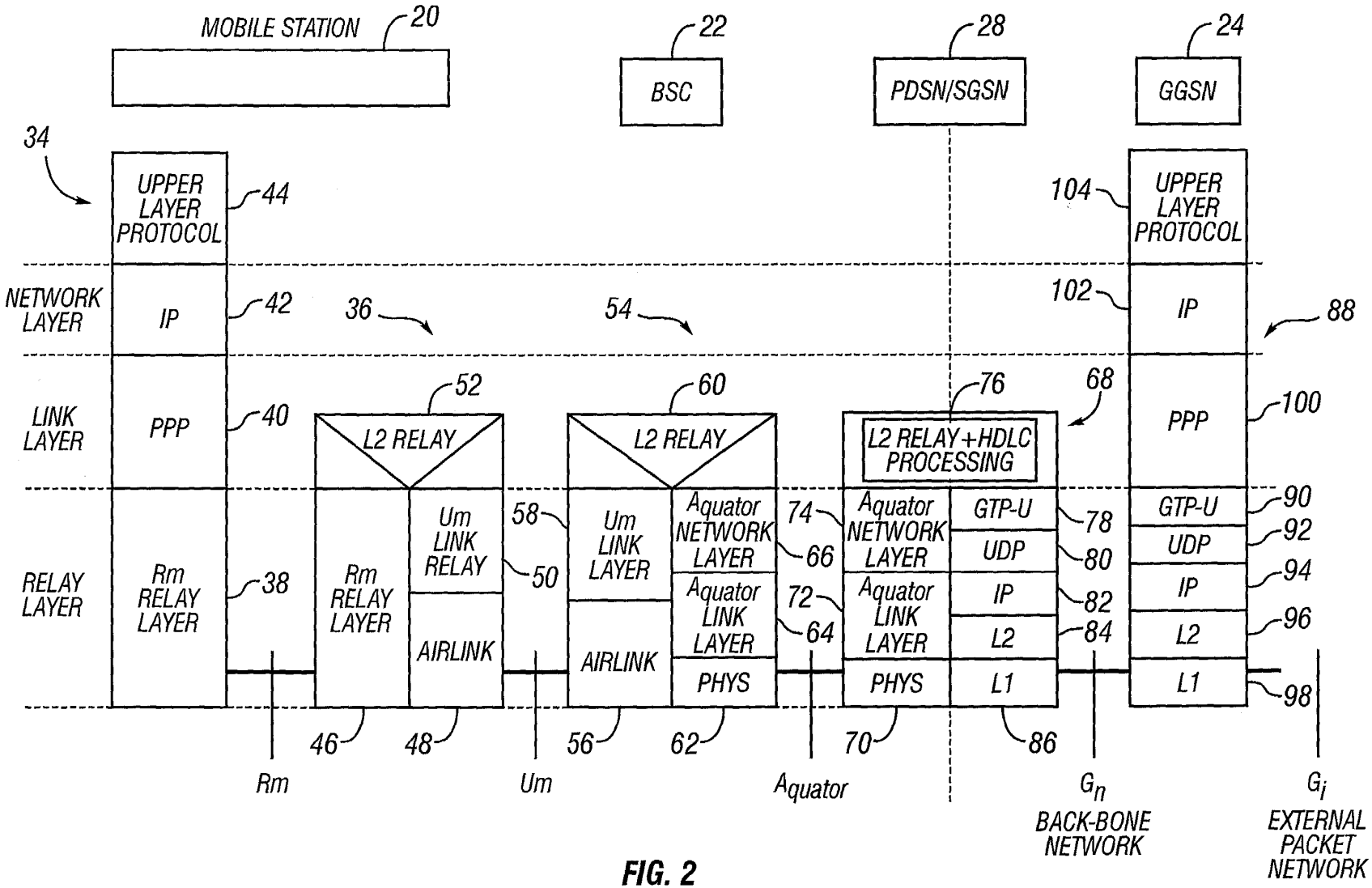

FIG. 2

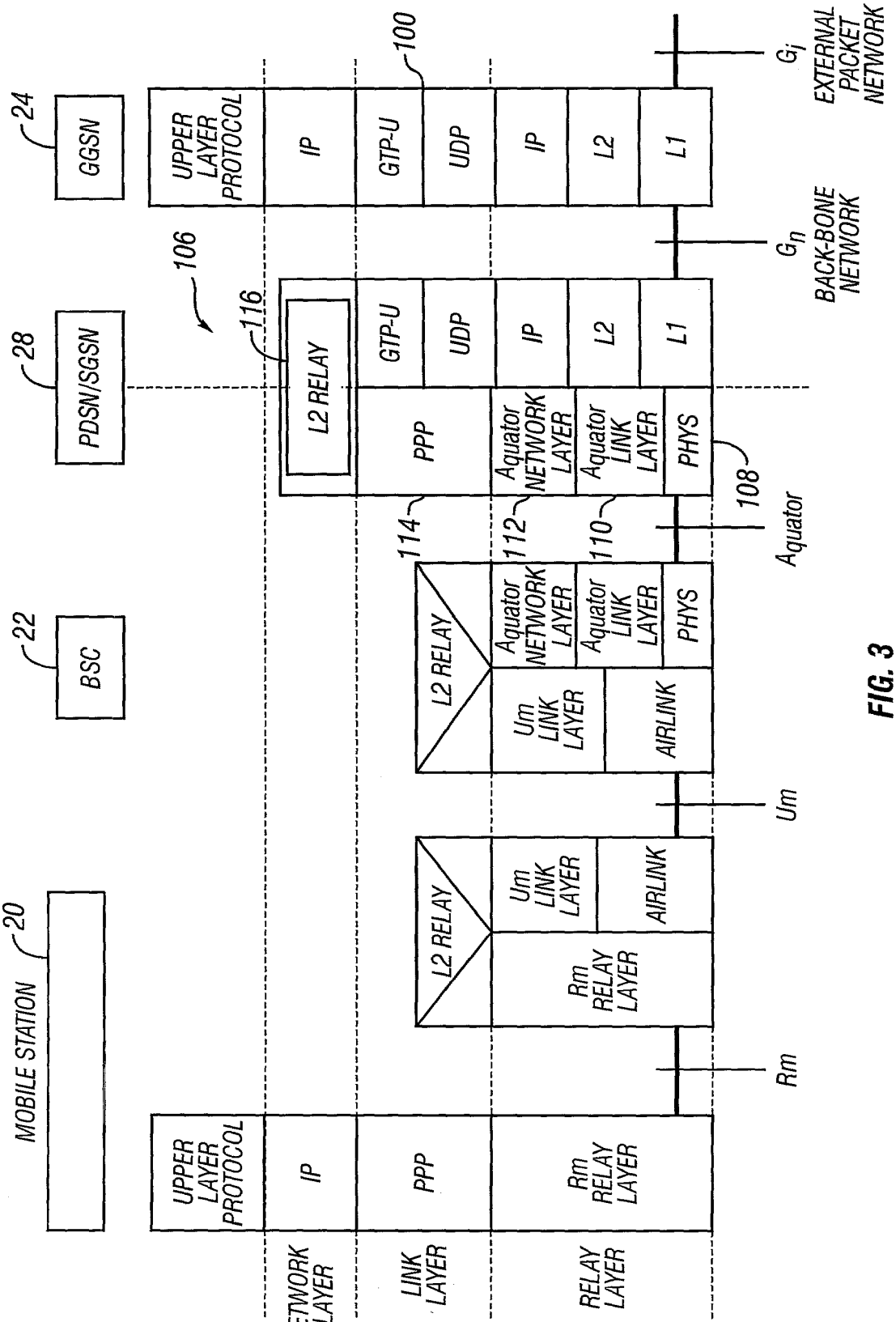
MOBILE STATION
20
BSC
22
PDSN/SGSN
28
106
GGSN
24
116
100
NETWORK LAYER
LINK LAYER
RELAY LAYER
UPPER LAYER PROTOCOL
IP
PPP
Rm RELAY LAYER
L2 RELAY
Um LINK LAYER
AIRLINK
L2 RELAY
Aquator NETWORK LAYER
Aquator LINK LAYER
PHYS
114
112
110
108
L2 RELAY
GTP-U
UDP
PPP
IP
L2
L1
Rm
Um
Aquator
G_n
BACK-BONE NETWORK
G_i
EXTERNAL PACKET NETWORK

FIG. 3

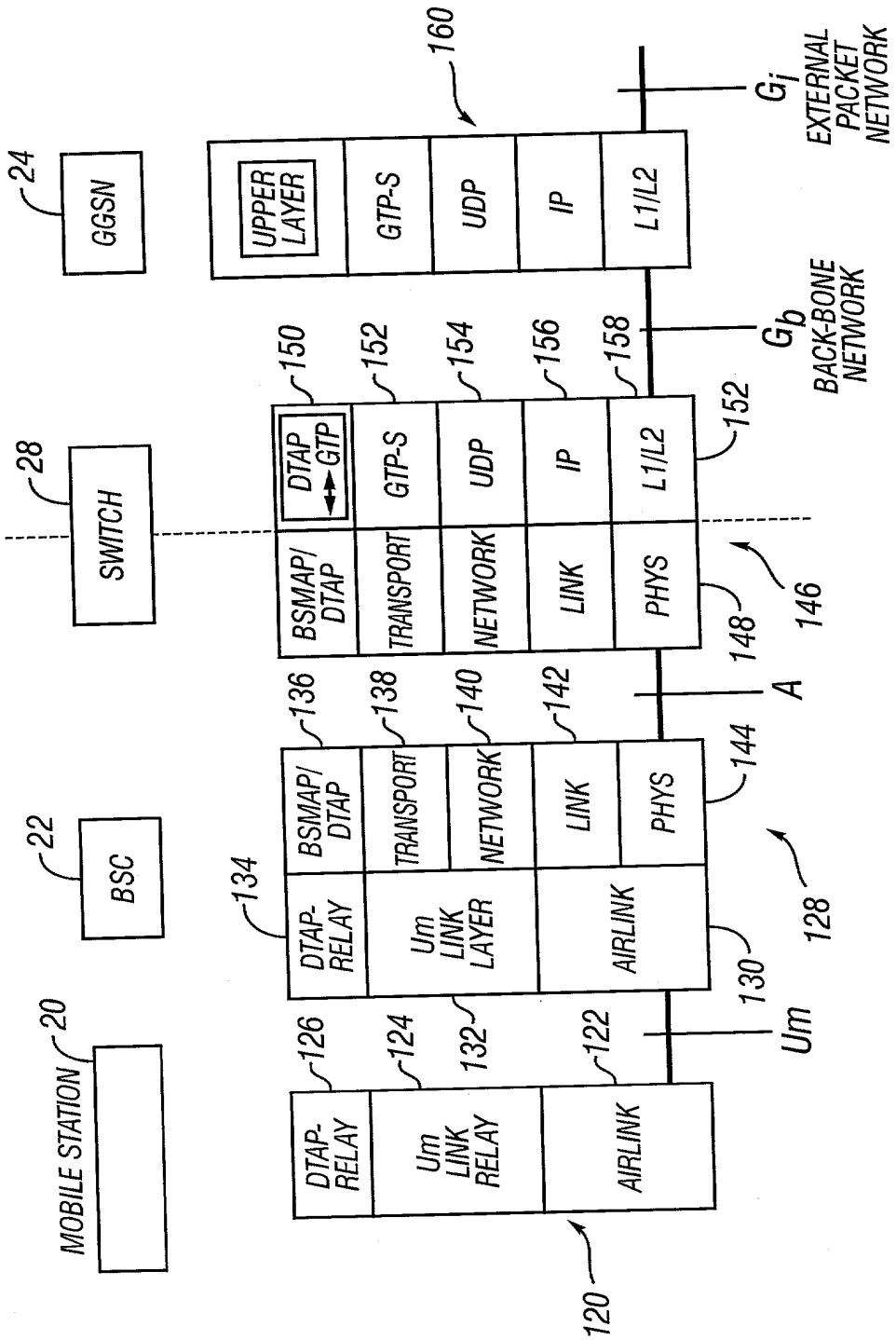
MOBILE STATION
20
BSC
22
SWITCH
28
GGSN
24
DTAP-RELAY
Um LINK RELAY
AIRLINK
126
124
122
120
DTAP-RELAY
BSMAP/DTAP
TRANSPORT
NETWORK
LINK
PHYS
134
136
138
140
142
144
130
Um
128
A
148
146
BSMAP/DTAP
DTAP GTP
TRANSPORT
NETWORK
LINK
PHYS
150
152
154
156
158
152
GTP-S
UDP
IP
L1/L2
UPPER LAYER
GTP-S
UDP
IP
L1/L2
160
Gb
BACK-BONE NETWORK
Gi
EXTERNAL PACKET NETWORK

FIG. 4

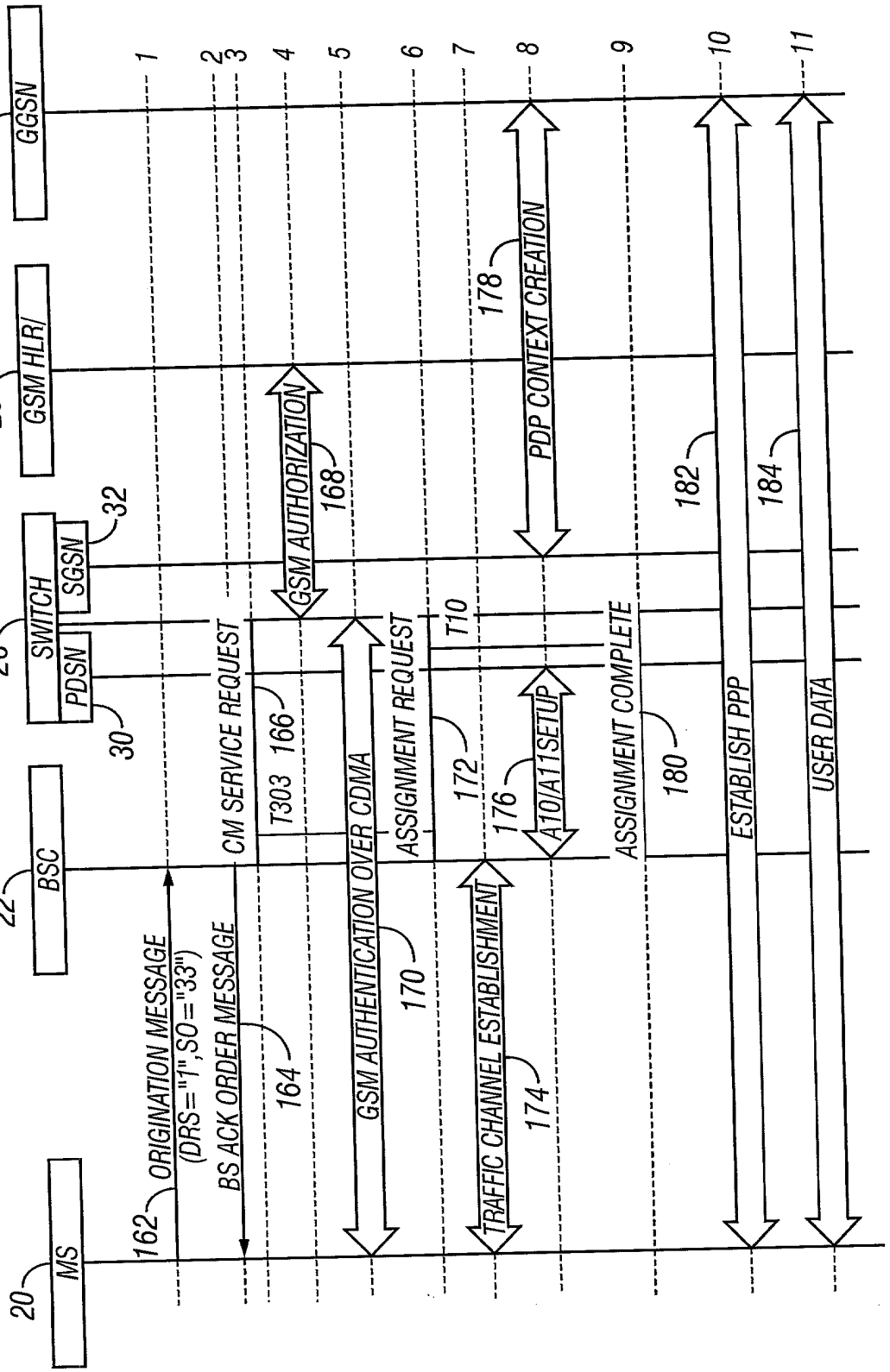
MS
20
BSC
22
PDSN
30
SWITCH
28
SGSN
32
GSM HLR/
26
GGSN
24
1
2
3
4
5
6
7
8
9
10
11
ORIGINATION MESSAGE
(DRS="1",SO="33")
162
BS ACK ORDER MESSAGE
164
CM SERVICE REQUEST
T303
166
GSM AUTHORIZATION
168
GSM AUTHENTICATION OVER CDMA
170
ASSIGNMENT REQUEST
T10
172
TRAFFIC CHANNEL ESTABLISHMENT
174
A10/A11SETUP
176
PDP CONTEXT CREATION
178
ASSIGNMENT COMPLETE
180
ESTABLISH PPP
182
USER DATA
184

FIG. 5

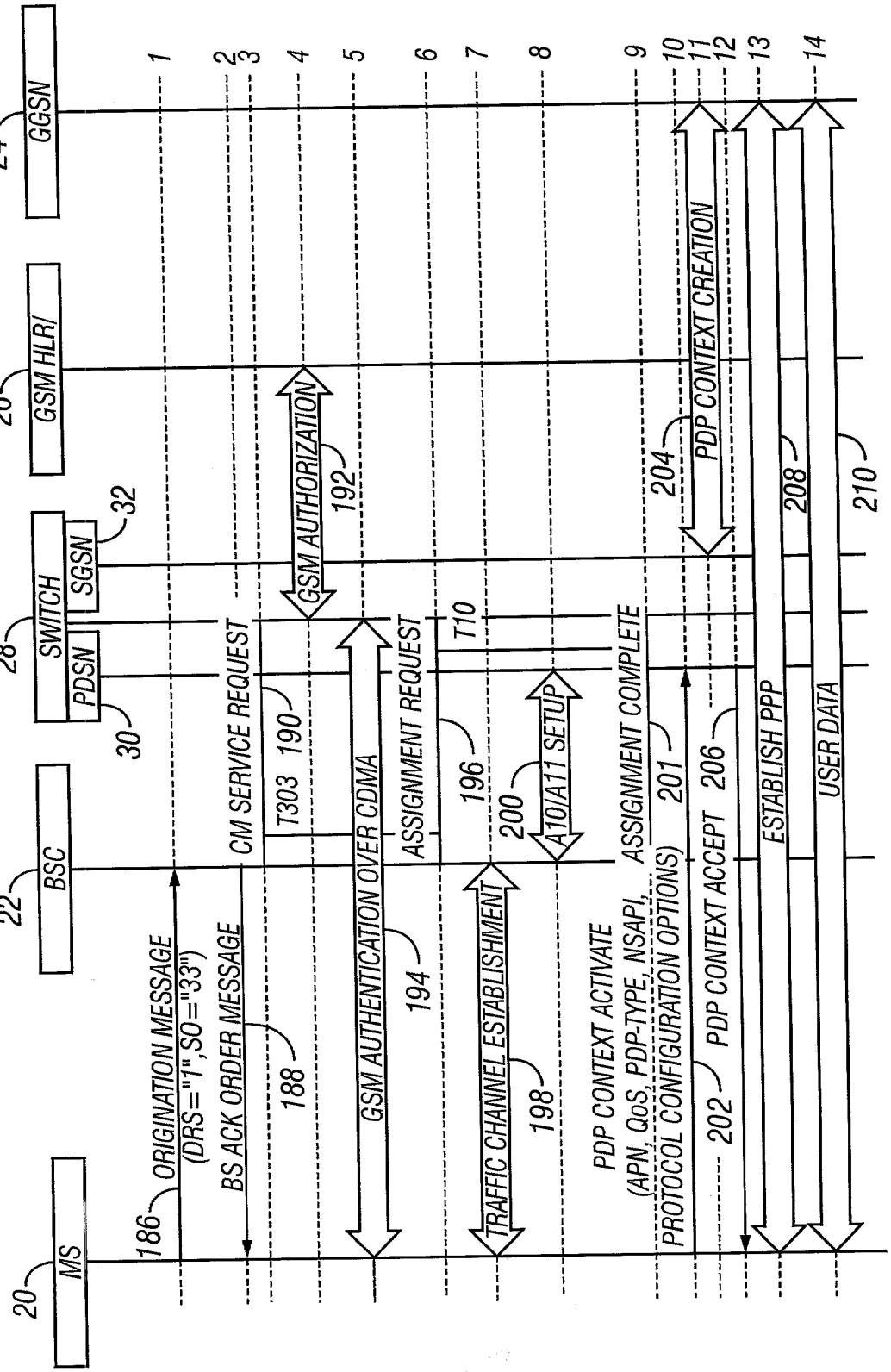
20 MS
22 BSC
28 SWITCH
PDSN 30
SGSN 32
26 GSM HLR/
24 GGSN
1
2
3
4
5
6
7
8
9
10
11
12
13
14
186 ORIGINATION MESSAGE (DRS="1", SO="33")
BS ACK ORDER MESSAGE 188
CM SERVICE REQUEST
T303 190
GSM AUTHORIZATION 192
GSM AUTHENTICATION OVER CDMA 194
ASSIGNMENT REQUEST 196
T10
TRAFFIC CHANNEL ESTABLISHMENT 198
A10/A11 SETUP 200
PDP CONTEXT ACTIVATE (APN, QoS, PDP-TYPE, NSAPI, PROTOCOL CONFIGURATION OPTIONS) 202
ASSIGNMENT COMPLETE 201
PDP CONTEXT ACCEPT 206
204 PDP CONTEXT CREATION
ESTABLISH PPP 208
USER DATA 210

FIG. 6

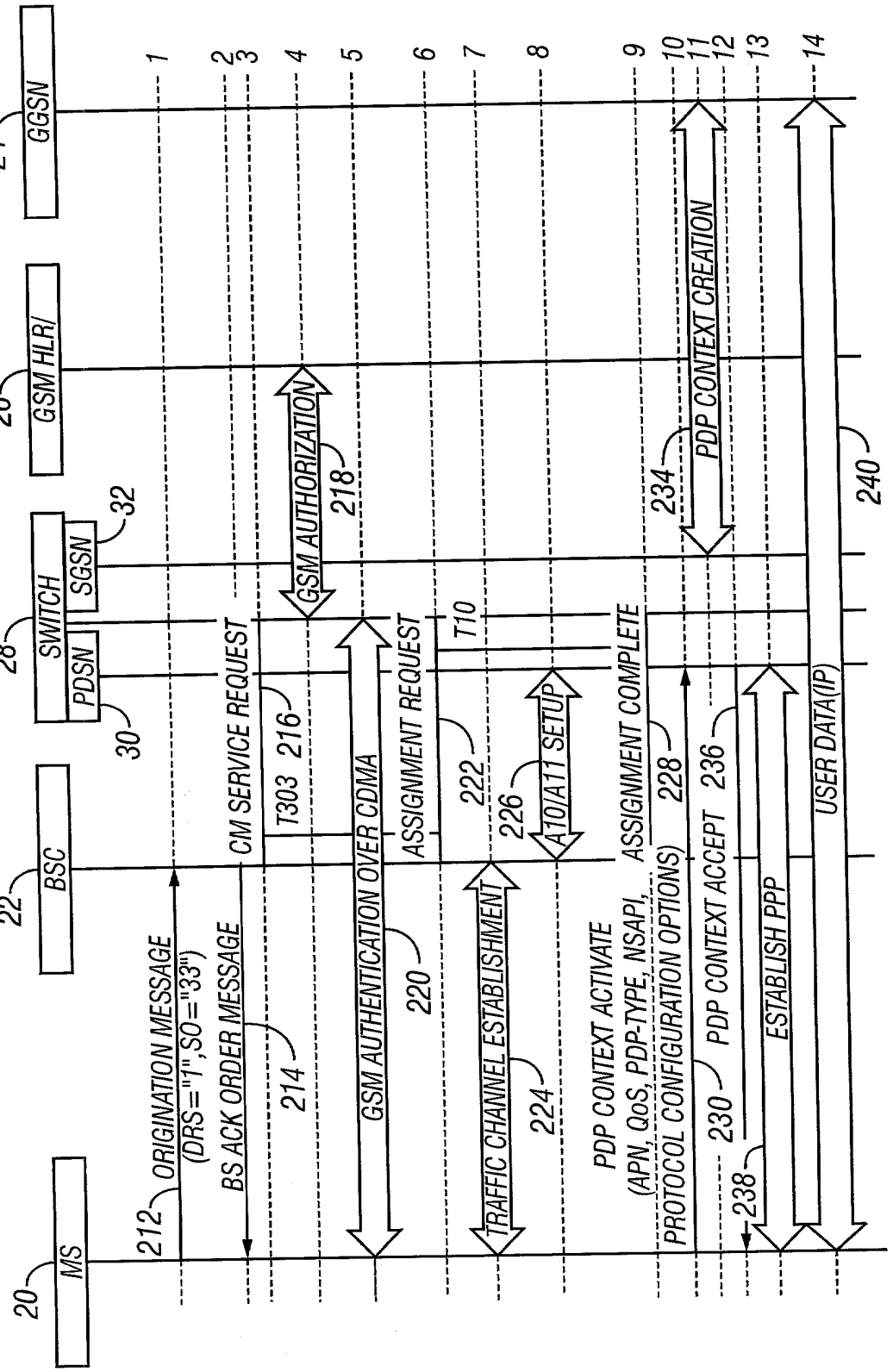
20 MS
22 BSC
28 SWITCH
PDSN
30
SGSN
32
26 GSM HLR/
24 GGSN
1
2
3
4
5
6
7
8
9
10
11
12
13
14
212 ORIGINATION MESSAGE (DRS="1", SO="33")
BS ACK ORDER MESSAGE
214
CM SERVICE REQUEST
T303 216
GSM AUTHORIZATION
218
GSM AUTHENTICATION OVER CDMA
220
ASSIGNMENT REQUEST
T10
222
TRAFFIC CHANNEL ESTABLISHMENT
224
A10/A11 SETUP
226
PDP CONTEXT ACTIVATE (APN, QoS, PDP-TYPE, NSAPI, PROTOCOL CONFIGURATION OPTIONS)
ASSIGNMENT COMPLETE
228
230
PDP CONTEXT ACCEPT
236
234
PDP CONTEXT CREATION
238
ESTABLISH PPP
240
USER DATA(IP)

FIG. 7